An
Inaugural Dissertation
On
Diabetes
Presented to the faculty
of
The University of Pennsylvania
For the degree of M.D.
By
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of
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Notwithstanding our acquaintance with this disease has within a few years been considerably extended, yet we must unquestionably be led to acknowledge that it is exceedingly difficult to assign a correct definition for the term diabetes. By Cullen it is asserted that this disease consists merely in the voiding of an unusually large quantity of urine, whilst by others it is maintained apparently with equal plausibility that the urine itself undergoes considerable change. There is in my opinion no question of the propriety of including both views of the subject in the strict definition of the term. It is believed by Cullen that this disease is sometimes connected with calculous affections of the kidneys, and that an irritation applied to them may increase the secretion of urine, but finally concludes that the singular change produced in the urine is not so easily explained. If we be permitted to argue from analogy, I think, fewer obstacles will occur in

unfolding this mystery than we at first sight should be inclined to imagine. In attempting an investigation of this subject I would in the first place enquire how it is with regard to other organs of the human system when they become disordered by the application of morbid or extraneous matter to them; whether they do not assume a secretory action entirely different from the natural one? If the idea advanced be considered as tenable we cannot but infer that the kidneys are governed by laws equally as obligatory as those by which other organs are influenced; or must it be allowed that they can become deranged and still retain the power of affording an unaltered secretion which would be claiming a ground that we are by no means entitled to. Stronger arguments in support of calculous affections being connected with, and interested in effecting this disease are afforded

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in the well-known facts that after having dissolved the calculi by the administration of suitable medicines and having prevented the predisposition to the deposition of urinary calculi by the use of a proper diet, the disease will in very many instances cease. It is believed by some authors who have written upon this affection that the liver is somewhat concerned in the formation of it in consequence of the bile being altered from its natural appearance; On the other hand this reasoning will not appear conclusive when we reflect that diabetes has prevailed without the liver having experienced any change whatever, a truth which has been incontestibly established. We may therefore rest satisfied that the notion of bile being effectual in producing diabetes is altogether nugatory, hypothetical and in no way satisfactory. The division of this disease made

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by Writers is into diabetes insipidus and mellitus
Concurring in the opinion expressed by some
Authors that it should in its most proper
sense be confined to the latter species I shall
therefore limit my remarks to the consideration
of it alone. Of this disease the Ancients have
furnished us no record in their writings, which
would lead us to believe they possessed any
very distinct or correct notions of its pathology,
causes or manner of treatment. It was
not until the year 1684 that we obtained
any regular account of it. At this period the
celebrated Willis appeared and dissipated
the cloud which had previously obscured
it. By Cullen the idea was entertained that
the proximate cause depended on some fault
in the assimilatory powers, but from this
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that the remote cause rather depended

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upon a depravation of those powers. The reason is very obvious and intelligible; that it is requisite that matter should be applied directly to an organ in order to effect so immediate and wonderful a revolution. The causes, which give rise to this affection are ingesta of various kinds especially those articles that are harsh and irritating. Medicines of a stimulating character are also very productive of it. It is stated that the phenomena of diabetes can only be explained upon the principle of the retrograde motion of some of the branches of the absorbent system. It would seem that all the branches of the absorbent system have a certain sympathy with each other. The kind of sympathy which exists between them most probably depends on habit. These are the views of Darwin as mentioned in his Zoonomia. This retrograde motion of the

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absorbents causes an immense quantity of urine to be poured into the bladder. These deductions do not appear as satisfactory as some, which have been previously drawn. From experiments made by A. Philips Wilson with a view to determine the circumstances, which give a predisposition to urinary gravel it would appear that the peculiarity of the deposition depended in a great measure on the kind and quality of the food consumed. If this be true it will no doubt have a powerful influence in demonstrating to us the most efficient plan to be pursued in the treatment of this hitherto obstinate disease. That this opinion is not entirely without some shadow of support we have not only his own experiment to convince us, but cases which have been cured by relying on the means that these experiments have suggested as the most proper

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to be adopted. "He seems to have been very careful in performing his experiments, therefore we may conclude they cannot be far from accurate. In an experiment upon himself he observes, that living partly on animal and partly on vegetable food and at the same time taking a certain degree of exercise, morning, midday and evening and setting apart a portion of urine in clean vessels; after permitting them to stand for 48 hours, he found in each of them a deposition, which had the appearance of a fine red sand precisely similar to the brick colored sediment, which is deposited by the urine towards the decline of febrile diseases and which after Scheele he denominated the lithic acid. "together with the common symptoms of increase and change in the urine, the stomach becomes uneasy, particularly after eating

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voracious appetite, which is one of the most common symptoms, the mucus in the mouth becomes thick and tenacious, or the mouth is said to be sometimes dry, tongue foul, depraved taste, dry husky skin, the bowels are also costive pain and heaviness in the lumbar region. If the disease be allowed to continue its course, all the symptoms enumerated, become aggravated and are followed by loss of strength and emaciation. The disease not terminating suddenly, hectic fever and incurable dropsy ensue. The pulse is usually slow and feeble, though febrile, urine is sometimes excessive varying in quantity from the usual discharge, even to thirty pints in twenty four hours. This disease may almost be considered as hereditary as some families appear peculiarly predisposed to it. With one I am particularly conversant where

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it occurred successively in several of the Individuals. The diagnosis with the above symptoms in view is not at all difficult, but should there any case arise in which there prevailed the slightest doubt as to the real nature of it, the point can very readily be determined by analysing the urine. The prognosis cannot quite so easily be formed. The disease for the most part presents itself in a very obstinate manner and generally in those, who are possessed of shattered and depraved constitutions. We may however prognosticate with considerable certainty of success when there is a diminution of thirst and desire for food, which are most characteristic symptoms, when the urine lessens in quantity, the bowels becoming more relaxed, an alteration in the condition of the skin and when there is an augmentation of corporeal strength and energy. When symptoms the opposite

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of what have been mentioned seem consequently we have but a faint prospect of effecting a perfect cure, although perhaps we may greatly relieve the sufferings of our patients. The appearances on post mortem examinations are exceedingly various. Sometimes the Spleen, Pancreas and Liver are found in a deranged state but in the majority of instances the kidneys will be found to have suffered the most complete disorganization. They are sometimes inordinately flaccid and enlarged at others extremely vascular and inflamed and of an ash-colour. The bladder is occasionally thickened and diminished in volume. The chylopoietic viscera above named are not always implicated, but the liver and kidneys generally experience the greatest disorder. The Pathology of diabetes is as yet very uncertain. The arguments in favour of the gastric origin of this affection appear to

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possess more weight than those, which are advanced on the opposite side. For my part I can see no inconsistency in locating this complaint primarily in the stomach, and that the kidneys are indirectly affected. And further in order that I may not seem to contradict an idea already brought forward, I will maintain as my candid opinion, that the stomach may be entirely prevented from increasing the disease and that after the kidneys have become once involved the disease may continue its progress wholly independent of any influence which the stomach had previously exerted over it. The phenomena of diabetes are certainly very curious, but is it more astonishing that the kidneys should secrete saccharine matter than they should secrete urea; and there is no doubt that they take on this morbid action in both cases from previous disorder of the

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digestive organs". These notions with regard to its being of gastric origin I deem to be not altogether without some claims to notice and certainly derive much confirmation from the result of the treatment, which to be most successful must be directed to the digestive apparatus. Previous to the appearance of the celebrated Rollo the most expedient plan to be pursued in the treatment of this affection was unknown to practitioners. It was the discoveries, which were made by him, that in a wonderful degree tended to banish that empiricism which had so long existed. If it be admitted that the digestive organs are primarily concerned in the formation of this disease of course (as in all other affections) we should commence at the source and endeavour to correct their depraved condition. With this view of the subject it will be most proper in the first place to evacuate

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the prima via and for this purpose an emetic of Ipecacuanha is considered as the best article that can be used. Should there exist much sickness and nausea mild purgatives may be resorted to as Rhubarb, Magnesia &c. & should the mucous surfaces be much disordered the use of the blue pill holds out the greatest prospect of success. After having cleansed the alimentary canal sufficiently by the administration of Cathartics, we should then lay them aside only using them now and then in order to keep the bowels in a soluble state. The Tonics and Astringents may next be exhibited with great propriety. Of these a vast variety have been employed such as Bark, Steel, Myrrh, Kino, Catechu, and especially the chalybeate preparations and of the latter ~~species~~ the carbonate of Iron appears to have attracted the greatest share of attention. Very recently the Phosphate of Iron

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has been most strenuously recommended by Beddoes. He considers it to be an almost infallible remedy. He commonly begins with small doses as 2 or 3 grs gradually augmenting it to two or three or four times a day. Dover thinks he has derived considerable benefit from the use of wine whey. A nervous irritation is a remarkably common accompaniment in this disease, and as it is advisable to allay this, the antispasmodics are generally resorted to. The most effectual article of that class is unquestionably, opium. At this period the skin is usually dry and hard and for the purpose of producing moisture and relaxing the surface, nothing more suitable can be adopted than the employment of the warm bath together with frictions. The various diaphoretics are also proper and the article most generally preferred is that of Dover's powder. Notwithstanding we may have decayed and shattered constitutions to deal with, we should not lose sight of the immense advantage, which on all hands is allowed to accrue from the abstraction of blood. It was employed in the beginning of the last

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contary. Bloodletting should not be sparingly used according to some authors. If much local pain should be present, topical bleeding by cups and leeches may be beneficially employed, after which a blister may be applied over the lumbar region and continued for a considerable length of time. Little will all our remedies effect unless the strictest attention be paid to a proper regimen. My Preceptor informed me he had accomplished perfect cures in several members of the same family by confining the patients to the use of an animal diet and not allowing them even a particle of vegetable food. The propriety of this course was suggested to him on reading the experiments of A. Wilson Philips, an account of which is afforded in his invaluable treatise on febrile diseases. In consequence of frequent relapses in this complaint we should particularly enjoin on our patients to be extremely careful to avoid all those things, which are regarded as exciting causes. — — — — — —